

Art Berman: 2017 Outlook for Oil

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Erik: Joining me next on the program is petroleum geologists Art Berman. Art sent us a fantastic slide deck to accompany today's interview so I strongly recommend that you download that Patrick told you before the interview where to find it.

Art thanks so much for joining us today and I want to start with the big picture before we get into your slide deck which is you and I both predicted this down move in crude oil. Just last week on this program I said I thought we were headed towards 45 but I have to question myself and say why now specifically because yesterday we did see a significant build on crude oil inventory but it was offset by drawdowns and finished products and frankly even the build wasn't nearly as big as we had a few weeks ago, so is there another catalyst in play or why is it that suddenly we're being proven right on this.

Art: Right Erik, well I agree with what you just said and more than anything I think it's just a failure of confidence in the ability of O.P.E.C. to deliver on the production cut. I mean the market has been bullied up by hope, expectation, first of a freeze then of a cut, we have lots of ups and downs in the earlier part of 2016 as hopes increased and then faded.

We can talk about all the technical factors that affect oil prices and we will talk about many of those before we're done with this discussion but I think more than anything people are just starting to really question first whether O.P.E.C. can deliver on the cuts that it's announced and secondly whether those cuts – even if they are successful – will they last long enough or will they be offset by increases in production from places like Libya, Nigeria and U.S. tight oil.

Erik: Let's go ahead and get into your slide deck, something that just blows my mind Art, I talk to people in the industry people who ought to know better and they'll say, "Yeah, you know crude oil inventories are really high but they're not nearly as high as they were last year when we had the low oil prices." That's just plain wrong, I mean we are at all-time record highs, way higher than last year. So, what's going on here and slide two walk us through this.

Art: Yeah slide two just shows U.S. crude oil inventories. Later on, in this deck I'll show OECD you know the developed countries of the world but U.S. shale is the problem and the problem is that 2015 levels of storage were all time record highs compared to any previous year. I show the four previous years 2011 through 14. 2016 was even higher than 2015 and 2017 is even higher than both of those. I mean you just can't make that go away its plain as day, there's no interpretation in this chart whatsoever.

Erik: And, this is all government supplied data so it's definitely striking to me that a year ago, we're looking at \$26 oil because everybody was afraid of a storage crisis and now we got

much more oil in storage, less available capacity has there been a huge increase in storage capacity over the last year that might explain why there is less sensitivity and to the risk of running out of space?

Art: Well there have been incremental increases in capacity but mainly they're just moving it around and as you and I have discussed before for lots of reasons that are hard to pin down when Cushing is approaching 88, 89, 90% capacity that's when prices go berserk and I think what's happened is that the ability to move inventories around out of Cushing and probably more into Gulf Coast which has more room, has become more efficient over the last year and so even though we've got more oil in storage it's not so much focused on the Cushing tanks.

Erik: And we should mention for the benefit of our listeners who may not realize that the Cushing Oklahoma is the settlement point for the West Texas Intermediate crude oil futures contract so the available capacity in Cushing Oklahoma definitely plays a critical role and as you say there has been an increase in the pipeline capacity out of Cushing down to the Gulf Coast so as Cushing starts to overflow they have more ability to contend with that problem than they used to but still we see these inventories on the rise.

Let's move on to slide three and I think we should start for people who have not heard your previous interviews explaining what you mean by comparative inventory, comparison of what to what and why is seasonality so important to understand when you're evaluating the crude oil market?

Art: Good Erik and my very strong sense and bias is that crude oil inventory is by far the most important single thing that you can look at if you want to understand price and try to divide or predict where it might be going. So, comparative inventory simply takes the inventory that we have today and compares it with a moving average of inventories for the same week over the last five years.

That's all it is, it's a fairly simple concept but what that does is it indexes how anomalous or how normal or how subnormal the current build or withdrawal is compared to what's gone on last year and over the past five years at the same date.

So, for instance if refineries are going through seasonal maintenance you're comparing likes with likes, you're comparing an inventory increase or decrease during maintenance with what happened in years when those refineries were also going through maintenance and so it normalizes the way that we think about inventory changes.

So, what this chart shows then is just a cross plot of W.T.I. spot price on the Y axis and comparative inventory which is again, current inventory minus the five-year average of past inventories that's all it is comparative inventory.

And what we see is that there are very nicely behaved trends that we can we can plot through those points and here I'm only showing three years' worth of data 2014 through 17 and I'm also showing some points up around 2006 and 7. I could show lots more but it would confuse the graph.

The point is that there is a trend line and you can think of that as the yield curve if you like and what it says is that based on that trend line W.T.I. is – well when it was at \$54 or 55 a day or so ago – was about \$6 or \$7 overvalued. Even today the futures are trading at a little

below 50 at the moment, we're still probably \$3 overvalued.

What's the cause of that overvaluation? Well, it's mainly expectation that somehow this O.P.E.C. "Deus Ex Machina" is going to resolve all the problems of oversupply and demand and everything else we talk about in the world.

But again, if we go and we look at this graph and say well OK, what do comparative inventories have to do to get us to \$70 and \$70 just happens to be where this trend line intersects the Y. axis and the answer is comparative inventory needs to fall 170 million barrels from where it is right now.

Erik: And if we look at this chart, there's really no sign of a reversal of trend here. We're seeing all these red dots moving further and further to the right on the chart. These are one week represented each weekly inventory report by a dot on the charts.

So, if I see just a couple of signs of a pullback in one or two dots that just tells me two weeks' worth of data we're starting to go in a direction that might have supported higher prices. That's not even close to a trend. So, we haven't really seen anything that would tell us that a secular reversal of price trend should be occurring here based on this data.

Art: Not at all if anything the straight line of points that sits just below the \$54 marker on that graph it's been moving pretty much to the right which is the wrong direction over the last two months basically.

So, one week it might move a little bit in the right direction but still the thing to keep in this chart is hardly dogma but what is I think dogma is if we don't start making some serious reductions in inventory and comparative inventory there's just no way that we're going to get to \$70 oil.

I don't know who made that number up but you can't just magically get someplace you have to do something first. You have to reduce your inventory and that's the bottom line and we're just not seeing it yet and when we see it, I'll be the first to cheer.

I drill wells, that's what I do for a living and nobody would like to see higher oil prices than Art Berman because it would be great for Art Berman's bank account if we had higher oil prices. But I have to tell the truth I mean if the signs look negative based on technical information, market data that's what I got to say. So, I'm not a pessimist, that's just what the data tells me.

Erik: Well, you know it's fascinating to me that so many people who ought to know better are focused on a rebalancing of production with consumption and they're not looking at the amount of oil in storage and if you look at the term structure of the crude oil futures contracts you know they're showing backwardation, until very recently there was backwardation just six months out on the curve and that would suggest that six months out there's going to be no need for storage. How could that possibly be if you're looking at a chart like this?

So, it blows my mind that there are quite a few hedge funds that were betting on developing backwardation as close as the June to December spread in 2017 and that just doesn't make sense based on this data.

So, I guess the question that begs for me though is I see these dots here moving further and further to the right we're already well to the right of where we were when we saw \$26 oil prices so does that mean that you think we're headed back to \$26 or below are we going to stay up here around this black long term trend line or are we going to overshoot it what do you think comes next?

Art: Well and obviously, no one knows the answer to that question but what this comparative inventory methodology allows me to do is I can systematically see we're things are going from week to week. So, there aren't any big surprises that happen here I mean or there's no physical way that we're going to you know produce 50 million barrels of comparative inventory in one week and all of a sudden everything shoots way to the right that's just beyond the capacity of the physical system.

And so, what this tells me is that if there is a correct price, the correct price is somewhere around \$45 a barrel. I think that the \$26 a barrel was overshoot in the wrong direction. I mean it was clearly below the trend line.

We were being dragged down in late 2015 or early 2016 by all kinds of issues that related mostly to sentiment about pessimism about the global economy, the stock market in China was going down the drain and the Euro, and the European Union seemed to be collapsing with the potential exit of Greece and demand growth for oil was very, very low at that time and so you know those are all real factors and they all affect price but none of them actually have very much to do with why prices got to \$26.

So, that was an overshoot in the wrong direction I think what we're seeing right now is not as severe of an overshoot in the upward direction but definitely an overshoot. So, to me what the O.P.E.C. production cut does is it pretty much puts a floor under oil prices at least as long as there's some reason to expect that they're going to be cuts of some sort and I think we have reason to see that.

So, it would surprise me if prices got below \$40 just to throw a number out there soon as I say that I'm probably wrong but it would surprise me I think the O.P.E.C. cuts probably put a floor at 40 under things.

There could be some very negative political or economic events that might cause it to go below that but that's what I think so 45 I think is the right number anywhere between where we were a day or so ago and 40 wouldn't surprise me below 40 would surprise me but it's possible.

Erik: As I look at page four in your slide deck here I have to wonder, it's showing essential that the surplus of production over consumption peaked a little over a year ago, around the beginning of 2016 and it's begun to decline since then.

So, you would think that if that surplus is decreasing and I think maybe this is the translation people make incorrectly as they think decreasing surplus and they think that that means decreasing amount of oil in storage and inventory what it really means is the rate at which the increasing storage is going out of hand is slowing but it is still moving further to the right.

So, how does that fit in here and is this decreasing surplus eventually going to get to a deficit and how long do you think that we are away from that, when we get to a deficit would you

think that we see a rapid drawdown or is it going to take years to work off all this excess inventory?

Art: That's a great question and of course again I don't know but let's just look at the recent months so this is EIA data that just came out a couple of days ago, and what it says is that the production minus consumption balance which is what's being shown here is about a million barrels negative as of February.

So, let's just say that remains a million barrels negative forever and what we're looking at is we need to reduce OECD inventories by about 500 million barrels to get to something that might support \$70 oil prices and we need to move U.S. inventories down something like a 100 or a 120.

So, what you're talking about depending on how you index this thing is you're probably talking about at least a year just doing the division and maybe more. So, the 500 and 550 of OECD at a million a day you're talking about a year and a half or so maybe a little bit less for U.S.

The point is – as I said before – is you just don't make step changes in inventory levels overnight it just doesn't happen and so I think that the expectation is, “Oh, great O.P.E.C.'s going to cut and so we're going to be good in a matter of time.” Well some matter of time yes, I agree with that completely that was a hugely positive thing don't get me wrong but it's a slow process like everything is in the world.

To hammer home the point inventory is part of supply it's like your savings account, you've got a checking account and you've got a savings account. Inventory is your savings account and if you happen to write too many checks and you're over-drafted in your checking account all you need to do is transfer some money out of savings in to the checking and you're good OK.

So, what this says is that if the production consumption balance remains negative you're going to be making withdrawals from your savings account on a regular basis and that's what's going to draw down inventory. But because inventory is so high, it's going to take a while it's that simple I think.

Erik: I think it's important to emphasize that there's no reason to assume that this decreasing surplus is going to keep decreasing or go to deficit because if you look at another chart which we don't have in this particular deck, but if you look at the graph of the rig count and you lag that by several months and look at U.S. production there's a very very strong correlation there.

So, we know from a predictive standpoint, if you look at the last three to six months of increase in rig count, we know U.S. production is going to increase and that's going to create a headwind for this decreasing surplus to decrease too much further.

So, the idea that the market is about to rebalance and everything's hunky dory by the end of 2017 which is the narrative that seem to be driving this \$55 oil price it never made sense and the data has been really clear all along.

Art: I agree with you I mean there are scenarios by which it could occur but they are low probability scenarios in my view and all you have to do is look at this chart Erik and you go

back as recently as August, September of 2016 and we had negative production consumption balances then too. In fact, in August we had a million and a half barrels of negative OK, well that didn't last very long and pretty soon we were right back above the line at a million, a million two so this what happens as the waves of production come into play.

So, we're looking at one data point is what we're looking at right now we've got one month of good positive data, if we have two months that's still not a trend but it's more encouraging than one, if we get three months then I'm going to start to say wow we might be seeing the beginning of a trend. But like all of these things they evolve kind of slowly.

Erik: On this next chart I see that we're seeing an increase in annual consumption growth and I just want to weigh that against I think IEA recently had made a forecast – we're looking on slide five here at historical data – I believe IEA's forecast was that this would move in the other direction that we would actually see a reduction in the rate of consumption growth over the next year is that correct and how does that play into what we're seeing on this chart?

Art: IEA and many other groups are looking out kind of longer term and we've seen some pretty impressive consumption growth which by the way is slightly different than demand growth but let's not get into that right now.

So, early in 2016 everybody like EIA, IEA was very pessimistic and they were saying if we're lucky we might get up to 1.2 million barrels a day growth and as recently as midyear. That was kind of the view and then we had some very strong months August was a super strong month. September, October were pretty good November was also strong and so that lifted the average for the year to 1.5 and then the first two months of 16 are really high, I mean we're up to 1.6.

To put that in perspective the average since the financial collapse is 1.6 we just clawed our way back to the average for the last seven or eight years which isn't bad but it's nothing to celebrate either.

The problem going forward and this is what you're referring to, is that IEA sees demand weakening into the coming year and continuing to weaken going forward over the next several years and that's due to all kinds of factors, the ongoing weakness of the global economy plus the headwinds against using fossil fuels and all of the climate change initiatives etc. and those are definitely part of some kind of long term trend.

I don't doubt that that data is notionally correct I think that the calls for peak demand are way premature I think we're going to be very dependent on oil particularly, but fossil fuels in general for a long time to come although I'm all in favor of let's move to other sources as quickly as we can it's just again it all takes time this is a big supertanker we're talking about here and you don't make quick turns.

Erik: As we continue to look at the last couple of slides of course we're looking at global data whereas the first few only looked at us data. In slide six we're looking at a comparison of the U.S. inventory picture comparing that to the rest of the OECD What is this slide telling you, what's the story here?

Art: OK Erik this is this is an incremental chart and so what I've done here is I'm looking at OECD

and I've subtracted U.S. separated from the rest of OECD because it's the biggest single compound and of course and all I'm doing here is I'm saying how much has the inventory grown since December of 2013.

So, the bottom of the chart is base OK and that's a very big number that's like you know 2.6 billion so I'm just showing the change that's what this thing shows and so what it shows is that is the total OECD, OECD minus U.S. plus U.S. has been growing like a son of a gun since December of 2013 and it was that inventory growth that really set off the oil price collapse that we started growing inventory beginning really in January of 14 and it took until June of 14 before the markets started paying attention and saying wow maybe we have a problem here and prices leveled off and declined a little bit below Brent was 110 at the time and it took a couple of the more months before the market really digested all of this and said wow we're in trouble.

So, beginning in September we were way way up this curve and prices and inventories have a beautiful negative correlation so like I started this discussion inventory, inventory, inventory you want to know where prices are go look at inventory and if inventories are building or not falling and they're high then you're stuck with lower prices for a while.

Erik: Now page seven is showing us U.S. crude oil production forecasts and it basically says here that EIA is projecting that by the end of 2018 we will be at an all-time high higher than the 1970s in U.S. production at 10.1 million barrels per day and they're saying \$59 WTI by then so how does that view of EIA relate to your views, do you think that they've got the story right or is there more to this picture than they're telling us?

Art: I think EIA does a pretty good job on short term forecasts and maybe not such a good job on longer term forecast but then who does. So, I think EIA these forecasts they've made over the past couple of years that I've been following them closely have been pretty good and do I believe that we're going to exceed 10 million barrels a day, gosh, I guess that would surprise me but might we get back to 9.6, 9.7 where we were in April of 15 sure we might and might we maintain a plateau there yeah sure we might.

The price forecast though Erik I think is more interesting than the actual production numbers though I mean what EIA is saying here is that their fairly sophisticated modeling which could be wrong is saying we're not going to get 60 bucks for two years at least and whether we believe that or not I think we have to take it seriously.

I mean here is an anchor against all of this hope and expectation where so many people would say, "Oh we'll be at 60 by the end of 2017, no problem and surely by the end of 2018." Well here's one of the two largest monitoring and reporting agencies in the world saying, "we don't think so."

But let's go back and recall that of all of the single superficial causes of the oil price collapse of 2014 it was U.S. crude oil production growth mainly from tight oil. That production increase was almost four and a half million barrels a day over just a couple of years, that's what broke the system.

Now there's a flip side to this and the flip side is that because of all of the dislocation in the U.S. oilfield services industry we can drill all the wells we want and we're drilling a lot of wells right now, the rig count has gone way up, but we don't have the capacity that we used to for the frack crews, the completion crews that are needed to convert that drilling into

production. So, I'm sure that EIA knows about that and is thinking about it but I don't know that very many other people are.

So, U.S. production growth is not a strict function of rig count its rig count plus the ability to convert that drilling into production and that takes frack crews, that takes pressure pumping.

Erik: You know Art the thing that fascinates me is there was so much focus in the press and everybody's eyes were on the O.P.E.C. compliance. They said they were going to cut 1.8 million barrels, would they really do it, would they do it, would they do it, would they, would they, would they?

Nobody was paying attention to Libya and other producers announcing increases in production which I think if you add them together might completely begin to make up for whatever O.P.E.C. was going to do.

So, give us the picture of you know aside from the O.P.E.C. cut that everybody focused on what else has been going on in terms of global production in the same time period?

Art: Well as you know Nigeria and Libya were exempted from the O.P.E.C. cut because those countries of have seen severe reductions in oil production because of civil unrest and related issues so they were exempted and so what's happened is that in Nigeria the main reason for the supply disruptions were that the government – they got a new government there, relatively new – they stopped paying off the rebels in the Niger Delta, the rebels went berserk and blew up a lot of pipelines and a lot of well production facilities and so recently the government has decided it's probably a pretty good idea if we paid these guys again. So, Nigerian production is increasing and has a good chance to increase back to a much higher level.

In Libya, there's a General who's been quite successfully retaking a lot of the refinery cities and the export terminals and so Libyan production has been going up and so I wouldn't say that nobody's been paying attention to it but the broader market has not been paying that much attention to it.

So, on the plus side of the equation there's certainly Libya, Nigeria and the U.S. that we've already talked about, Iran continues despite agreements – they are somewhat exempted from the agreement not totally – they've increased. Is Iraq complying, Iraq needs money for a lot of reasons, to fight ISIS and so there's just an awful lot of unknowns in the equation.

On the negative side is Venezuela. Venezuela is about as close to a failed state as you're going to get and things are getting worse there and not better and so on the deficit side we could see decreasing production from Venezuela.

In short Erik, I mean the world is a hugely complex interlocking puzzle of pluses and minuses and every country is doing what it sees is totally rational for its own purposes taken as a whole it might look totally nuts.

So, to try to imagine that because O.P.E.C. and Russia and a few others have joined together and said OK we're going to cut, first of all we have doubts as to whether they're going to actually do that to the extent they say they do, but even if they do that is not the whole world, the world is complicated and there's lots of opportunities for ups and downs in

production.

Erik: Now Venezuela is almost completely out money I read at least one article that said they're down to their last ten billion dollars of reserves for the entire country. So, what happens when they run out I mean this is the classic creditor problem of the foreign contractors that are producing oil for them if they say hey if you don't pay us we're going to pull out then that guarantees they'll never be able to pay them.

So, do you think that the foreign contractors will kind of keep working on credit and keep producing oil or is there a risk of a sudden complete cessation of Venezuelan production?

Art: Yeah, good question and I wish I knew the answer but I don't. My sense is like with many or most things in the world I tend to minimize the likelihood of sudden events. Venezuela is not exactly a paragon of high integrity government or economic functioning and so if the only source of income is oil or one of the only significant sources of income is oil, no matter how bad things get there are probably selfish people that are going to somehow figure out how to keep some amount of production going.

But you're absolutely right I mean if you've got to pay people and I don't know where it can go. I'm not looking for Venezuelan production to drop to zero just because somebody will figure out how to make the money how they pay those guys, I don't know. It's not the first time by far it's not the first time that contractors and other oil companies operating in that country haven't been paid.

Erik: Let's come back to the United States because something that I'm very curious to get an update on is it seems like we went through the worst of the glut everybody sort of lost track of everything but the Permian Basin in terms of shale plays in the United States. The Permian was economic to continue drilling and making new wells and so forth even at the bottom of prices.

But they pretty much stopped in the Bakken and I don't know if that's begun again, so let's go through the major shale plays the Bakken and the Eagle Ford and so forth are they starting to drill again there, how does it look?

I know that you had a blog post describing how the Bakken may be in a state of permanent decline, what's the story there give us the update on U.S. shale and what the picture looks?

Art: So the three major plays are Bakken, Eagle Ford and Permian and to take your last point first I just recently did a bottoms up, very detailed analysis of the Bakken and the Bakken isn't over by a long shot but what my study revealed is that it is clearly showing signs of depletion and you can read my post if you want the details but the bottom line is that the downside of all of this technology and the efficiency that we hear so much positive about, is that it decelerates the decline of your resource.

And so what I think is happened in the Bakken is that we've reached or exceeded the maximum well spacing needed to drain the reservoir. So, production has declined a lot of that's because of price but a lot of it is because of the fact that the wells are simply interfering with each other. The reserves for each successive year of new wells brought on has been going down every year and they're drilling in all the best places so that just says that it's because wells are stealing production from each other, they're drilled too close together given all this fantastic technology.

So, the Bakken is going to be with us for 10 or 20 years it's just I don't think that there's any amount of drilling that's going to get it back to whatever its peak was of 1.1 or 1.2 million barrels a day. It's just physics, this happens to all oil fields there's nothing special about tight oil or shale that exempts it from the laws of physics.

But to your other point so the other two plays, the Eagle Ford, the Permian, the Permian gets all the press and so since mid-September which was really when it became probable that O.P.E.C. was going to do something and we added over a hundred rigs in the Permian Basin like a 62% increase that clearly overshadows the other two plays but let's not minimize them.

The Bakken has increased by 12 rigs since then and that's almost a 50% increase because it was down to 26 and the Eagle Ford has increased by 30 that's a pretty substantial increase as well. Not as not as impressive as the Permian in terms of total rigs or percentage growth but pretty darn notable let's put it that way.

So, I guess the next question is well are these the only plays that there are or is somebody about to hatch the next Permian Basin play on us. Well first of all the Permian Basin is really three tight oil plays in one I won't get into the details of those I've got blog posts on them if you want to read them but so far at least the answer to that seems to be somewhere between no and maybe E.O.G. resources has done a lot of work in a play called The Buda which is B-U-D-A in east Texas and by the amount of money they're spending up there could this have the potential to be another Eagle Ford or Bakken maybe but we don't know.

Beyond that though, no, I think this idea that because shale is everywhere that we're going to somehow have some infinite amount of new production, not all shale is equal and it has to be at the right depth and a lot of other technical factors.

So, I would say that for the time being if there's maybe one more tight oil play out there over the next five years or so that's significant, to me that would be a lot and the Buda play of E.O.G. is far from proven, they've drilled a couple of wells.

But the Permian, the reason that it's so attractive is that there's a lot of room to run with, these tight oil plays, the two of the three in particular, they're not very densely drilled yet and so there's a lot of locations that can still be drilled and that could mean significant production growth. The Permian has never declined through all of this oil price collapse production continues to grow in those tight oil plays in the Permian.

Erik: I want to move on to another question let's just hypothetically consider the possibility that President Trump's policies so far have been very much you know focus on America first and so forth what if the Trump administration were to announce, OK, look here's what we're going to do, we're going to intentionally implement policies, import taxes and so forth that will be designed to create a major renaissance in the U.S. oil production, we're going to support the American oil industry and we're going to do that by making it more expensive to use imported oil, we're going to do everything that we can to promote the growth and expansion of the U.S. oil industry.

If President Trump were to do that, is the industry ready to ramp up and go into super production mode or are there challenges that would maybe make that difficult and if so what are those challenges?

Art: The key challenge Erick is that the composition of U.S. oil and US tight oil in particular is very peculiar. It's what we call ultra-light sweet oil. It is very, very light it's almost some of it in the gasoline phase when it comes out of the ground and that's kind of a good thing because you don't have to do a lot of fancy processing or refining on it to get it in to the products that you can sell to make money.

The downside of that is that about thirty years ago when U.S. oil production was in serious decline, the refining industry reengineered all of its refineries for much heavier oil because that was the dominant supply in the world as it is still today and so suddenly we have this renaissance of new U.S. production that all happens to be super super light and we don't have the refinery capacity to do anything with it unless we blend it with heavier grades of crude oil so that then the blended mixture is right for our refineries and then we're OK.

Well, where does that heavier oil come from? Well most of it is imported OK we get a lot of heavier oil from Saudi Arabia, we get a lot of heavier oil from Canada, we get it from Venezuela, we get it from Mexico.

So, if you cut off the imports of the heavier oil then you can produce all you want and you just throw it into storage because you can't refine it and you can't export that much of it either because nobody else really knows what to do with it.

Erik: Let's suppose that Mr. Trump were able to recognize that and maybe organized things in order to support the growth of the U.S. industry by allowing the tax-free import of the heavier oil needed for blends but not as principal stock, is the industry ready in terms of the equipment and facilities that it needs to ramp up significantly if the economics were there or are their other challenges in terms of the readiness of the drilling equipment and so forth?

Art: OK, well first thing we don't import anything but heavier oil these days so there's no cut that he can make and say well we'll take your heavy oil but we're going to cut off everybody else who has lighter oil. We stopped importing light oil when we made this big step forward with tight oil. We've done all the substitution we can that's why U.S. imports declined, we simply substituted imported light oil with our own oil.

But to your question is the industry ready? I don't think they are, we've seen a significant increase in rig count but we're still nowhere close to where we were before the price collapse and the oilfield services industry, the drillers and all of the industries that support the drilling to ramp up to a point that if you want to make the U.S. more self-reliant on domestic supply boy, that's a real real stretch.

And then as I've already described the ability to do the fracs, the pressure pumping, to convert the drilling to production we're looking at-- I mean that part of the industry is a disaster, the state of their equipment that has deferred maintenance, cannibalize parts. I mean I've heard knowledgeable people tell me that if we started spending a lot of money today and we haven't yet that it might take a year and a half or two to get that capacity back up to where it was in 2014. So, those are some real challenges to ramping up production.

The other thing I need to remind people this idea that the U.S. can be energy independent is just the most ridiculous idea in the world I mean we import almost seven and a half million barrels of crude oil a day. We import pretty nearly half and there's nothing wrong with

being dependent on other people I mean we are not self-supplied with coffee and nobody complains about importing coffee from Columbia or Africa or wherever that's the nature of trade but for the United States to be 100% oil self-sufficient, well it'll happen when we stop using oil but as long as we rely on oil as our principal source of primary energy it isn't going to happen.

Erik: I want to move on to more of a technical trading topic, I know that's a little bit outside your field, but I want to get your perspective on it anyway which is we now have just hit – and it's come down a little bit in the last week or two – but we just recently hit an all-time record speculative long interest in crude oil futures. So, that means that speculators – hedge funds primarily – are more long as measured in barrels than they've ever been before including 2014

But there's another side to that argument that some people have posited to say wait a minute if you measure it in barrels that's true, but if you measure it in dollars we're nowhere close to as much long interest in terms of dollars at risk as we were in 2014 and that means that we could go back to the same amount of dollars' risk and if we did that would be even more.

I can't really decide how to play this out, what's more important because the number of barrels that's really what translates directly to the number of days of supply of production or of consumption or what have you but the amount of dollars probably is a better measure of the capacity of Wall Street to make the wrong bets potentially.

Do you have a view on this, what's important and what do you think this record long interest means, to me it's a sign of excessive speculation and probably all the ingredients are there for a big unwind and a major price correction to the downside which may very well be upon us. Do you think that's true or how do you see this?

Art: Yeah, I absolutely do. I go back to history Erik and if you look at those long positions back over the last let's say ten years just about every time that we get to a peak in those long positions that precedes a big price drop.

That's a purely empirical observation but for instance in early 2011 we reached a peak in net long positions and oil prices went from \$112 down to \$80 and we saw well in 2014 you just discussed that but in terms of total contracts that was very close but second to the recent peak and what happened there was that prices went from \$105 a barrel down to \$44 a barrel.

We had a price rally in early 2015 where prices got up to \$60 record long positions prices went from \$60 first to 41 and eventually down to 26. So, if history is a guide then these record long positions ought to be viewed very suspiciously as often an overshoot before we see a price collapse or a big drop in prices.

Erik: And it's entirely possible that that could be on us that's an interesting statistic as we've been recording this interview on Thursday morning when we began speaking Art, oil was trading above \$50 about 50 spot 09 it's moved down more than a dollar just in the time that we've been speaking touching 49 briefly and 49 spot 07 as I look at my screen right now. So, who knows maybe the unwind of that long position has begun.

Unfortunately, we are out of time, I want to mention to anybody who doesn't already

subscribe, you write a fantastic blog at artberman.com. It's free there's no advertising, the content is fantastic. Listeners if you are not subscribing to Arts' blog and you're at all interested in this market you are not acting rationally, you want to subscribe to Arts' blog it's absolutely excellent and that is free at artberman.com.

Let's talk though about what's not free because we do have a significant institutional following in our audience, what do you do at Labyrinth Consulting, I know that you're involved in drilling oil rigs but you also provide services to investors give us the rundown of what business you're in.

Art: Very quickly, I've shown you I can tell you an awful lot about where price trends are probably going and I've got some really good help on that from other parties. You want consulting on what companies you ought to have in your portfolio or take out of your portfolio, I can do very accurate assessments of what's the underlying asset of this company and how much does it really cost them to produce the oil, what's the real breakeven price and are they telling you the truth when they say that they can breakeven at \$40 or \$35 a barrel.

So, basically valuations and investment decisions, I'm not an investment adviser but I can tell you what the data says about the strength of a company or an investment that's what I do.

Erik: Well unfortunately we are up against our hard limit in terms of time so thank you so much Art for another fantastic interview we look forward to getting you back on the program in a few months and Patrick Ceresna and I will be back in just a minute as Macro Voices continues right here at macrovoices.com.

[End of interview]